

Appln. No. 09/676,598
Response dated March 27, 2006
Reply to Office Action of December 27, 2005
Docket No. BOC9-2000-0005 (554)

REMARKS/ARGUMENTS

These remarks are submitted in response to the non-final Office Action dated December 27, 2005 (Office Action). As this response is being timely filed within the shortened statutory period, no fees are believed due.

Claims 11-15, 19-24, 26-36, 45, and 46 were rejected at pages 3-4 of the Office Action under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,343,399 to Yokoyama, *et al.* (hereinafter Yokoyama) in view of U.S. Patent No. 5,422,812 to Knoll, *et al.* (hereinafter Knoll) and U.S. Patent No. 6,285,317 to Ong (hereinafter Ong). Claims 16 and 18 were rejected at page 10 of the Office Action under 35 U.S.C. § 103(a) as being unpatentable over Yokoyama in view of Knoll and Ong, and further in view of U.S. Patent No. 5,835,881 to Trovato, *et al.* (hereinafter Trovato). Claim 17 was rejected at page 11 of the Office Action under 35 U.S.C. § 103(a) as being unpatentable over Yokoyama in view of Knoll and Ong, and further in view of U.S. Patent No. 5,177,685 to Davis, *et al.* (hereinafter Davis). Claims 47 and 48 were rejected at page 12 of the Office Action under 35 U.S.C. § 103(a) as being unpatentable over Yokoyama in view of Knoll and Ong, and further in view of U.S. Patent No. 6,415,696 to Ellenby, *et al.* (hereinafter Ellenby). Claims 1-10, 25, 37-44, and 49, in response to a restriction requirement, were previously withdrawn without prejudice to Applicants' right to pursue in one or more separate applications protection for the subject matter related to these withdrawn claims.

Applicants have amended independent Claims 11, 20, 26, and 32 to emphasize certain aspects of Applicants' invention. Claims 18 and 19 have been cancelled by Applicants, while Claims 50-60 have been added. As discussed herein, the claim amendments and newly-presented claims are supported throughout the Specification. (See, e.g., Specification, p. 6, lines 8-16; p. 12, lines 4-10; p. 12, line 23 – p. 13, line 3; p.

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14, lines 10-15; and p. 15, line 18 – p. 16, line 13.) No new matter has been introduced by virtue of either the claim amendments or the newly-presented claims.

Applicants Invention

It may be useful at this juncture to describe certain aspects of Applicants' invention. One embodiment of the invention, as typified by amended independent Claim 11, is a method of providing driving instructions to the driver of a vehicle. The method can include sensing a position of the vehicle, and comparing the position of the vehicle with a desired location. According to the method, if the vehicle is in a predetermined position, a signal indicating that the driver should take an action can be generated. The predetermined position can be determined based upon an estimated time when the driver should take the action.

Further according to the method, a message can be displayed on a windshield of the vehicle in response to the signal. The message can indicate the action the driver should take, and the message can be displayed along with a virtual image of an area around the desired location. The image can include at least one landmark. Moreover, the message and virtual image can be displayed prior to when the driver should take the action indicated in the displayed message.

One aspect of the invention is the recognition described in the Specification that the displaying of information on the windshield when the vehicle is in motion can be distracting to a driver of the vehicle. (See Specification, p. 16, lines, lines 4-13.) The advantage of providing driving instructions to a driver before a driver action should be taken has been generally recognized. (See, e.g., Knoll, Col. 6, lines 59-65.) There is no recognition apart from Applicants' invention, however, that after instructions have been issued to a driver, any visual display should be terminated before an action is taken so as not to distract the driver during execution of the action. Indeed, the prior art stresses the issuance of instructions and the display of images as near to, or concurrently with, the

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driver's taking an action. (See, e.g., Yokoyamma, Col. 3, lines 46-61; see also Ong, Col. 5, lines 46-60, and Col. 6, lines 42-51.)

By contrast, as exemplified by amended Claim 11, Applicants' invention can obviate such driver distractions by removing from display any message and/or virtual image; that is, by terminating the displaying of the message and virtual image prior to when the driver should take the action..

Thus, the message and image of Applicants' invention can be displayed to a vehicle driver when the vehicle at an estimated time before the action is to be taken. A subsequent determination can estimate how long before the driver reaches a desired location or point at which an action should be taken, and based on the second estimated time, the display of a message and/or image can be discontinued. (See, e.g.. Specification, p. 6, lines 8-16; p. 12, lines 4-10; p. 12, line 23 – p. 13, line 3.) In an alternative embodiment, typified by newly-presented Claim 52, the display can be presented when the vehicle is an estimated distance from the point where a driver action should be instigated. Then, when the vehicle is at an estimated distance from the desired location or point, the display of instructions and/or virtual image can be terminated.

The Claims, As Amended, Define Over The Prior Art

As already noted, each of the independent claims were rejected as unpatentable over the combination of Yokoyamma, Knoll, and Ong. Applicants respectfully submit, however, that none of the references, alone or in combination with the others, teaches or suggests every feature of independent Claims 11, 20, 26, or 32, as amended. Nor do the references teach or suggest every feature of the newly-presented claims.

Yokoyamma is directed to a vehicle navigation system with which "timely voice guidance" is provided to a driver of a vehicle. (See Col. 1, lines 50-52; see also Abstract.) As noted at page 3 of the Office Action, Yokoyamma nonetheless fails to provide a display on a vehicle windshield. Knoll, however, is cited as teaching an en-

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route vehicle guidance system that includes a heads-up display. As further stated in the Office Action, Knoll presents, via such a display, simple turning directions to a driver along with displays of vehicle speed and an engine rpm reading.

Knoll nevertheless fails to teach or suggest first presenting to a vehicle driver a display of a message and virtual image when the vehicle is in a first position, and then subsequently removing or terminating the display when the vehicle is in a second position, as recited in each of the amended independent claims and newly-presented independent Claim 52. Knoll is silent about terminating a message or virtual image display in order to not distract a driver who must execute a driver action. Indeed, Knoll teaches away from this feature by explicitly teaching an alternative solution to the problem. Rather than discontinuing a display, Knoll instead constructs the display so as to show only "selective representations" of items such as landmarks in order that the display is "hardly" distracting while being continuously projected onto a windshield. (Col. 2, line 68 – Col. 3, line 3.) As explicitly stated elsewhere in Knoll:

"When, in the course of travel, the operator of the vehicle approaches intersections and turn-off points, where a decision has to be made which way to go, guiding symbols 30, 31, 32 (FIGS. 11, 12, 13) can be displayed on the output device 43 in abstract form, or can be displayed on an additional display device. Such abstracted path guiding symbols are shown in exemplary form in FIGS. 11-13. They are visually similar to direction information on road signs, and are thus familiar to vehicle operators. By the partial or abstracted representation, which can be displayed in good time before a decision must be made, the operator can be forewarned to make a decision for the further course of the travel path. It enables the operator to place the vehicle in a turning lane, for example, since the further course of the travel route is indicated. The respective symbols shown in FIGS. 11-13

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are so simple that the operator is distracted as little as possible from attention to overall traffic". (Col. 6, lines 50-68.) (Emphasis supplied.)

The above-quoted portion makes explicit one of the significant differences between Knoll and Applicants' invention. Knoll does not present a message or virtual image display *only* in advance of a driver's having to take a designated action. Instead, Knoll's display is a continuous presentation up to and through the point at which the driver instigates an action; that is, from the point of approach to when the action must be decided upon. Accordingly, Knoll does not terminate the display when the driver subsequently reaches a second point prior to that at which the driver action must be taken. Rather, to avoid distraction to the driver, Knoll explicitly relies on the continuous display of elements "so simple" as to be only a little distracting. Whether the display is so simple as to be "as little" a distraction "as possible," a key difference remains: Knoll provides a concurrent or near-concurrent display that is hopefully only a little distracting because the display is intentionally "so simple," whereas Applicants' invention provides an earlier display that can be terminated in time not to be a distraction.

Ong also fails to teach or suggest displaying a message and virtual image to a vehicle driver when the vehicle is in a first position, and then subsequently removing or terminating the display prior to the vehicle reaching the point that the driver should take an indicated action, as recited in each of the amended independent claims as well as newly-presented independent Claim 52. Ong displays a constantly changing real-time scene of an environment – using, for example, a vehicle-mounted camera – with turning directions overlaid on the scene display. (See, e.g., Col. 2, lines 35-40; see also Abstract.) A key feature of Ong is that the display "image will essentially match the actual environment in front of the vehicle." (Col. 5, lines 61-65.)

It follows that Ong does not display a message and virtual image to a vehicle driver prior to a point at which the driver is to instigate a driver action. Rather, Ong

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displays an image of the actual environment, in real-time, where and when the action is to be initiated by the driver. It therefore follows that Ong teaches away from early presentation and subsequent termination of a display prior to the driver's taking a designated driver action, as recited in each of the independent claims as well as newly-presented independent Claim 52.

Yokoyamma certainly does not teach or suggest terminating a windshield display prior to the driver's taking a designated driver action since, as noted at page 3 of the Office Action, Yokoyamma does not provide any such windshield display. More fundamentally, however, Yokoyamma, like both Knoll and Ong, fails to recognize the problems associated with providing a driver-distracting display at a point at which a driver is to instigate a driver action. Indeed, Yokoyamma explicitly describes the providing of audible driver instructions up to and through the point of the driver's taking an action. (See, e.g., Col. 3, lines 46-61.)

It further follows that none of the references teach or suggest displaying on a windshield of a vehicle a message indicating an action a driver should take along with a virtual image of an area around a particular location, wherein the message and virtual image are displayed prior to when the driver should take the action, and wherein a predetermined position at which the display is generated is determined based upon an estimated time when the driver should take the action, as recited in amended Claims 11, 20, 26, and 32. Nor do the references teach or suggest terminating the display based on an estimated time prior to when an action should be taken by a driver, as variously recited among amended Claims 11, 20, 26, and 32.

Similarly, none of the references teach providing and terminating a display at different points relative to where a driver action should be taken or to a desired location based upon estimated distances. Specifically, none of the references teach or suggest providing and terminating a display of messages or virtual images if the vehicle is in a predetermined position based upon an estimated distance from the vehicle to a point at

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which the action is to be taken, and then terminating the display at another point prior to that at which the driver action should be taken, as also recited in amended Claims 26 and 32 as well as newly-presented Claim 52.

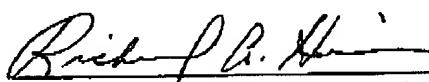
Accordingly, each of the cited references fails to teach or suggest every feature recited in amended independent Claims 1, 20, 26, and 32, as well as newly presented independent Claim 52. Applicants respectfully assert, therefore, that each of the independent claims defines over the prior art. Applicants further respectfully assert that whereas each of the remaining dependent claims depends from one of these independent claims while reciting additional features, the remaining dependent claims likewise define over the prior art.

CONCLUSION

Applicants believe that this application is now in full condition for allowance, which action is respectfully requested. Applicants request that the Examiner call the undersigned if clarification is needed on any matter within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the application to completion.

Respectfully submitted,

Date: March 27, 2005



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